

WHAT IS CLAIMED IS:

1. A variable gain amplifier, comprising:
  - a divider for dividing a input signal;
  - 5 a fixed variable gain amplifier for amplifying an output signal of the divider;
  - a microstrip ring hybrid for outputting a plurality of signals which have the same or different phases, the microstrip ring hybrid comprising a plurality of input terminals and output terminals having a constant impedance;
- 10 a switch for selectively inputting an output of the variable gain amplifier to any one of the input terminals of the microstrip ring hybrid;
  - a transmission line for delaying the output signal of the divider; and
  - a combiner for combining each of the output signals of the microstrip ring hybrid and a signal passing through the transmission line and outputting
- 15 the combined signal,
  - wherein the output power is controlled by selectively inputting the output of the variable gain amplifier to any one of the input terminals of the microstrip ring hybrid by means of the switches.

  

- 20 2. A variable gain amplifier according to claim 1, wherein an impedance of an inner diameter line and the distances between the terminals of the microstrip ring hybrid is controlled, thereby each of the terminals having an impedance  $Z_0$ .

3. A variable gain amplifier according to claim 1, wherein the impedance  $Z_0$  is  $50\Omega$ , wherein the impedance of the inner diameter line is  $\sqrt{2} Z_0$ , and wherein the distance between terminals is  $\lambda/4$  or  $3\lambda/4$ .

5 4. A variable gain amplifier according to claim 1, wherein the number of each of the input and output terminals of the microstrip ring hybrid is two.

5. A variable gain amplifier according to claim 1, wherein the length of the transmission line is  $\lambda/4$  or  $3\lambda/4$ .